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Supply positioning in support of humanitarian assistance and disaster relief operations

Mitchell, Gregory P.

Monterey, California. Naval Postgraduate School

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MBA PROFESSIONAL REPORT

Supply Positioning in Support of Humanitarian Assistance and Disaster Relief Operations

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By: Gregory Mitchell,
Bruce Reilly, and
Jeffrey Cisek
June 2011

Advisors: **Aruna Apte**
Keenan Yoho

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The U.S. military possesses many capabilities that are used throughout the range of military operations (ROMO) in order to carry out planned and contingency response missions. These capabilities can bring destruction to an adversary or can provide critical aid in a humanitarian assistance or disaster response (HA/DR) operation. In many situations, prepositioning supplies and equipment is essential to the Department of Defense (DoD) in a rapid response that is efficient and effective. Such readiness translates to the pre-establishment of adequate inventory capacities and resources that enable efficient relief operations. In this study, we identify current prepositioned DoD inventory locations and establish a framework for DoD decision-makers to use in developing the most appropriate logistics strategy for different natural disasters that may occur around the globe.

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SUPPLY POSITIONING IN SUPPORT OF HUMANITARIAN ASSISTANCE AND DISASTER RELIEF OPERATIONS

Gregory P. Mitchell, Lieutenant Commander, United States Navy
Bruce M. Reilly, Lieutenant, United States Navy
Jeffrey J. Cisek, Captain, United States Marine Corps

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NAVAL POSTGRADUATE SCHOOL
June 2011

Authors: _____
Gregory P. Mitchell

_____
Bruce M. Reilly

_____
Jeffrey J. Cisek

Approved by: _____
Aruna U. Apte, Co-Lead Advisor

_____
Keenan D. Yoho, Co-Lead Advisor

_____
William R. Gates, Dean
Graduate School of Business and Public Policy

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ABSTRACT

The U.S. military possesses many capabilities that are used throughout the range of military operations (ROMO) in order to carry out planned and contingency response missions. These capabilities can bring destruction to an adversary or can provide critical aid in a humanitarian assistance or disaster response (HA/DR) operation. In many situations, prepositioning supplies and equipment is essential to the Department of Defense (DoD) in a rapid response that is efficient and effective. Such readiness translates to the pre-establishment of adequate inventory capacities and resources that enable efficient relief operations. In this study, we identify current prepositioned DoD inventory locations and establish a framework for DoD decision-makers to use in developing the most appropriate logistics strategy for different natural disasters that may occur around the globe.

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LIST OF ACRONYMS AND ABBREVIATIONS

ACM	Air Contingency MAGTF
AEF	Air and Space Expeditionary Force
AF	Amphibious Forces
AFMC	Air Force Materiel Command
AFRICOM	Africa Command
AMC	Army Materiel Command
AOR	Areas of Responsibility
APOD	Air Point of Debarkation
APS	Army Prepositioned Stock
ARNORTH	United States Army North
AWRS	Army War Reserve Sustainment Stocks
BBSP	Bare Base Support Package
BEAR	Basic Expeditionary Airfield Resources
CD	Counter-Drug
CEG–E	Combat Equipment Group–Europe
CENTCOM	Central Command
CHPMSK	Contingency High Priority Mission Support Kit
CinC	Commanders-In-Chief
CM	Consequence Management
CMC	Commandant of the Marine Corps
CNO	Chief of Naval Operations
COCOM	Combatant Commander
CONREP	Conventional Replenishment
CONUS	Continental United States
DCO	Defense Coordinating Officers
DCPA	Defense Civil Preparedness Agency
DCS	Deputy Chief of Staff
DCSG 3/5/7	Deputy Chief of Staff Operations / Civil Affairs / Advanced Concepts
DCSG 4	Deputy Chief of Staff Logistics
DCST	DLA Contingency Support Team
DDXX	Deployable Distribution Center
DLA	Defense Logistics Agency
DOC	Deployable Operations Center
DoD	Department of Defense
DoN	Department of the Navy
DRC	DLA Regional Commander
DSCA	Defense Support of Civil Authorities

EMF	Expeditionary Medical Facilities
EUCOM	European Command
FEMA	Federal Emergency Management Agency
FID	Foreign Internal Defense
FIE	Fly-in Echelon
HA/DR	Humanitarian Assistance and Disaster Relief
HQ	Headquarters
HQDA	Headquarters Department of the Army
IAA	Interagency Agreement
IP	Internet Protocol
JCS	Joint Chiefs of Staff
JTF	Joint Task Force
LIC	Low Intensity Conflict
LMSR	Large, Medium-Speed, Roll-On/Roll-Off Ship
LOM	Level of Maintenance
LTC	Lieutenant Colonel
MA	Mission Assignment
MAGTF	Marine Air-Ground Task Force
MCO	Major Combat Operations
MCPIC	Marine Corps Prepositioning Information Center
MCPP–N	Marine Corps Prepositioning Program–Norway
MEB	Marine Expeditionary Brigade
MEF	Marine Expeditionary Force
MEU	Marine Expeditionary Unit
MLP	Mobile Landing Platforms
MOOTW	Military Operations Other Than War
MPE/S	Maritime Prepositioning Equipment/Supplies
MPF	Maritime Prepositioning Force
MPS	Military Prepositioning Ship
MPSRON	Maritime Prepositioning Ships Squadron
MRE	Meal, Ready to Eat
MRSP	Mobility Readiness Spares Package
MSC	Military Sealift Command
MV	Motor Vessel

NALMEB	Norway Air-Landed Marine Expeditionary Brigade
NCC	Naval Component Commander
NEO	Non-Combatant Evacuation Operation
NJOIC	National Joint Operation and Intelligence Center
NJOIC	National Joint Operations and Intelligence Center
NORTHCOM	United States Northern Command
OCONUS	Outside the Continental United States
OIG	Office of the Inspector General of the Department of Defense
OJCS	Office of the Joint Chiefs of Staff
OOTW	Operations Other Than War
OPDS	Off-Shore Petroleum Distribution Ship
OPROJ	Operational Projects Stocks
OSD	Office of the Secretary of Defense
OWRMR	Other War Reserve Materiel Requirements
PACOM	United States Pacific Command
PK	Peace Keeping
POM	Program Objective Memorandum
REFORGER	Return of Forces to Germany
ROMO	Range of Military Operations
SATCOM	Satellite Communications
SDTE	Swiftly Defeat the Effort
SecDef	Secretary of Defense
SOCOM	United States Southern Command
SPOD	Sea Point of Debarkation
SSC	Small Scale Contingency
SSG	Staff Sergeant
T/E	Table of Equipment
TRANSCOM	United States Transportation Command
TSC	Theater Security Cooperation
USA	Unites States Army
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USAMMA	United States Army Medical Material Agency
USMC	United States Marine Corps
USN	Unites States Navy
USNS	United States Naval Ship
VCJCS	Vice Chairman Joint Chiefs of Staff
VERTREP	Vertical Replenishment

WD	Win Decisive
WMP	War Mobilization Plan
WRM	War Reserve Material
WRSI	War Reserve Secondary Items

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I. INTRODUCTION

Prepositioning enables an organization to be ready for catastrophic events (Apte, 2009; Van Wassenhove, 2006) and may be considered a form of capacity expansion (Salmeron & Apte, 2010). A pro-active rather than re-active approach to disaster preparation is the best means of mitigating damage from natural disasters or other forms of destruction. However, despite systematic planning efforts, when emergencies do occur—whether they are on a small scale or catastrophic—they can be overwhelming (U.S. National Archives and Records Administration, 2011). Prepositioned supplies need to be placed and organized to logistically support the response strategy. A shortage of a particular type and quantity of item could cause the emergency response to be ineffective and result in increased human suffering and decreased security levels. Prepositioning allows for a faster response, better procurement planning, and improvement in distribution costs (Ergun, Karakus, Keskinocak, Swann, & Villarreal, 2011).

The goal of our study is to develop a global map of the current prepositioning sites across the Department of Defense (DoD) Services and the Defense Logistics Agency (DLA). Our secondary goal is to compare the inventories at each location and determine the releasing authority for the equipment and supplies.

In Chapter II, we give a general historical background of prepositioning. In Chapter III we provide a literature review of DoD reports and military directives pertaining to prepositioned supplies. In Chapter IV we describe the data used to support the conclusions of our study, and in Chapter V we provide recommendations to decision-makers for how to improve the use of prepositioned stocks across the entire range of military operations as well as suggestions for possible future research that would improve the effectiveness and efficiency associated with prepositioned materiel.

A. PROBLEM BACKGROUND

Military prepositioning is meant to support combatant commanders in support of war plans. The designation of military supplies as war reserve or as available for other

operations has resulted in each Service maintaining its own prepositioned materiel for various war plans or other contingencies. The DoD is now moving toward coordinating all prepositioned materiel to support operations in the full range of military operations (ROMO) and prepositioned materiel planning is not to be limited to conventional combat operations (DoD, 2010).

The current concept of ROMO found in Joint Publication 3-0—*Joint Operations* (Joint Chiefs of Staff, 2008)—is defined as follows: (a) military presence, surveillance, and deterrence, (b) crisis response and limited contingencies, and (c) major operations and campaigns (see Figure 1). This doctrinal concept of ROMO eliminates the traditional boundary between conventional and other military operations, such as stability and reconstruction.

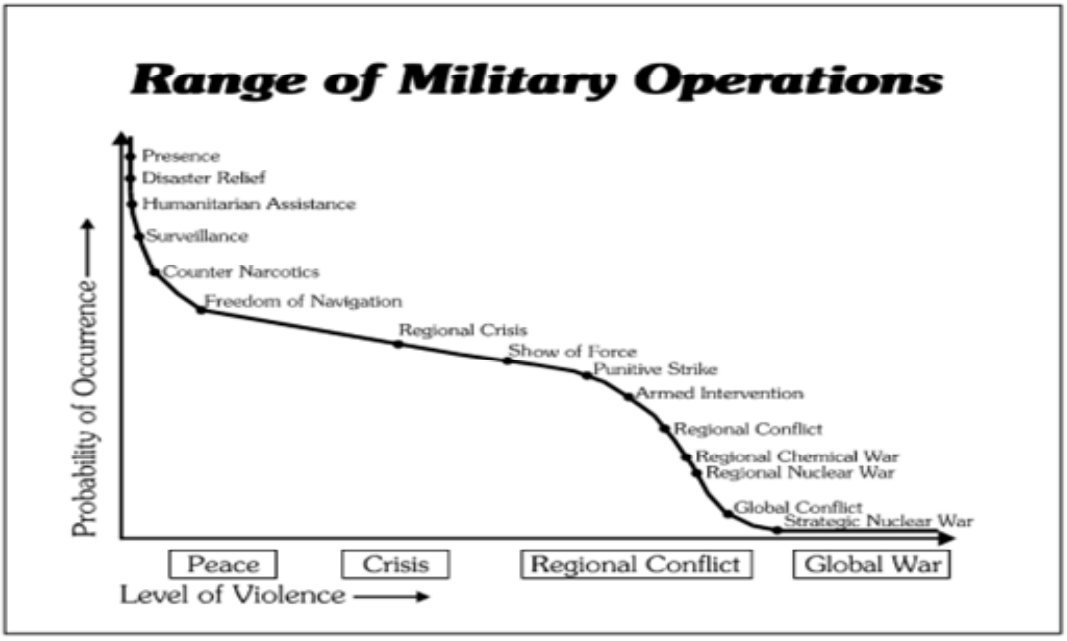

Figure 1. Range of Military Operations

B. PURPOSE OF THE STUDY

In this study, we identify current prepositioned DoD inventory and develop a framework for DoD decision-makers to use in developing the most appropriate logistics strategy for different natural disasters that may occur around the globe.

C. RESEARCH QUESTIONS

Previous research into the DoD prepositioning programs has focused on the wastefulness and inefficiency of the supplies that lie in wait for World War III (GAO, 2005). When conducting humanitarian assistance and disaster relief (HA/DR) operations, private companies, NGOs, and other government organizations have prepositioned stocks that can supplement the DoD effort. Although all supplies and equipment prepositioned for HA/DR should be considered, we determined the scale of capturing this data to be too great of an objective for this project. For this reason, DoD prepositioned materiel is the only data we considered in the analysis. We also made the determination to further reduce the project's scale by only considering DoD Class I subsistence materials, Class II small equipment, Class IV construction materials and Class VIII medical supplies.

In this study, we determined where the DoD land- and sea-based prepositioning equipment and supplies are located. Second, in this study we determine if it is within the guidelines and doctrine of each branch to use all prepositioned stocks for HA/DR operations, specifically Class I, II, IV, and VIII materiel. Recognizing that each Service and DoD agency has different core missions and governing instructions, our study also attempts to identify each Service and agency's materiel releasing authority and determine if it is standard within each combatant commander (COCOM) and Service.

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II. MILITARY PREPOSITIONING HISTORY

A. OVERVIEW

When a disaster occurs, the event is overwhelming. To mitigate the disaster, one of the strategies that can be used is prepositioning. However, the inventory costs associated with prepositioning can be expensive. Supplies and equipment that are prepositioned must be warehoused and inventoried in such a way that allows rapid withdrawal from storage. DoD response to disasters with prepositioned items must be swift in order to realize the advantage of placing stocks close to an anticipated contingency area. The items must be warehoused in a ready to use status because complete protection storage status would cause a bottleneck when accessing the equipment and supplies. In this chapter we explore what has been done in the past to resolve such issues.

Prepositioning began in 1961 with the Department of Army directing the land prepositioning of vehicles and equipment for two divisions stationed in Europe that included 10 support units. The Marine Corps started prepositioning during the same timeframe as the Army but favored the idea of floating warehouses for prepositioning vehicles and equipment, this concept turned into the Maritime Prepositioning Force (MPF) in 1986. The Army later adopted the afloat preposition concept in 1991 to complement the Service's land prepositioning strategy. The Army, Air Force, and Marine Corps currently have land-based and sea-based prepositioning programs (Le Pera, 2004).

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III. LITERATURE REVIEW

In this chapter, we discuss the literature that has addressed military prepositioning strategy and policy.

McGarvey et al. (2010) cautioned the DoD that the Air Force War Reserve is currently constructed and stored in a manner that was effective in the Cold War planning area but may not be appropriate for current contingencies. The authors suggest that strategies should be updated to store materiel that is more readily deployable in a smaller scope with a quicker response to support the current expeditionary style of operations.

Button, Gordon, Hoffmann, Riposo, and Wilson (2010) reported that pre-positioning of materiel via sea-basing would be operationally flexible, but with a high cost. The authors stated that current plans would cause a degradation of logistics and alternatives to the Maritime Prepositioning Force (Future) and DoD must develop alternatives to be successful.

The Comprehensive Materiel Response Plan (CMRP) (Vice Chairman Joint Chiefs of Staff, 2011) identifies the terms of reference for the DoD to develop a comprehensive plan for materiel positioning and distribution to support the full range of military activities. Co-led by U. S. Transportation Command (TRANSCOM) and Defense Logistics Agency (DLA), the CMRP will address the DoD's response requirements regarding its global materiel, storage and distribution network while considering transformational supply, storage, and distribution capabilities and best practices. The DoD will also explore the potential for improved inter-agency synergies with non-DoD partners.

Army Sergeant First Class Gail Braymen (2007) relayed some of the characteristics of the information technology system located in U. S. Northern Command (NORTHCOM) called the Situation Awareness Geospatial Environment (SAGE). SAGE utilizes Google Earth as a platform to display global pre-positioned locations as well as range and depth of materiel. The data SAGE displays was already available via existing

difficult to access systems; however, the advantage SAGE brings to HA/DR operations is the collaboration of current pre-positioning information on an intuitive database that assists in making intelligent HA/DR logistic decisions. This type of technology can be used as a model for DoD prepositioning on a global scale. Research should be conducted on the development of an information technology system to provide joint commanders with situational awareness of the prepositioning assets available across the Services and the DLA.

The Government Accountability Office (GAO) claimed in a 2005 report that the DoD has provided insufficient oversight to the Services in the management of prepositioning programs and that the DoD has not enforced current directives that could have provided this oversight. The report also stated that the DoD has not developed a coordinated department-wide plan or joint instruction to guide the future of its prepositioning programs.

The Army Regulation (AR) 710-1 (United States Army, 2007) is the source document for Army prepositioned material. Chapter 6 of this regulation covers management of prepositioned stocks to include an overview of stocks and release procedures for stocks, prepositioned unit sets, prepositioned operational projects, and prepositioned war reserve sustainment stocks. This document identifies the operational project stocks as available for use in support of HA/DR missions.

The Marine Corps Order P3000.17A (United States Marine Corps, 1996) is the manual that provides Marine Corps policies and guidance and assigns organizational responsibilities for the planning and management of the Maritime Prepositioning Force (MPF) program in the Marine Corps.

Marine Corps Warfighting Publication (MCWP) 3-32, Maritime Prepositioning Force Operations (United States Marine Corps, 2004) provides doctrine, tactics, techniques, and procedures to plan and execute an MPF operation.

U.S. Marine Corps Technical Manual TM 4790-14/1E, Logistics Support for the Norway Airlanded Marine Expeditionary Brigade GEO-Prepositioning System (United

States Marine Corps, 1999) provides technical guidance and fiscal and manpower requirements for the logistics support of the United States Marine Corps equipment and supplies prepositioned in Norway.

Air Force Instruction 25-101 War Reserve Materiel (WRM) Program Guidance and Procedures (United States Air Force, 2006 May) has been revised with new Air Force guidance for use of WRM; the revised version implements stricter controls on the use of Basic Expeditionary Airfield Resources (BEAR) assets in Military Operations Other Than War (MOOTW), provides more specific guidance on the requirements determination process, and further clarifies functional responsibilities in WRM program management.

Air Force Handbook Volume 2 (United States Air Force, 2006 April) Guide to Bare Base Assets describes the BEAR assets that the Air Force utilizes as a primary prepositioning platform.

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IV. METHODOLOGY

In this thesis, we collected and analyzed inventory data from the DLA and each Service in an attempt to map prepositioned inventory stored globally. The inventory we studied in this thesis was Class I, II, IV, and VIII. We reviewed current release instructions that identified the portion of inventory from each Service that can normally be made available to support HA/DR missions.

We collected data via DoD directives, Service directives, DLA directives, and various Service-maintained websites. We also collected data from COCOMs, to include the functional COCOM of TRANSCOM. Additionally, we solicited information requests from the DLA in all regions, the Headquarters for the Department of the Army, and the Office of the Commander, Navy Surface Forces Atlantic (SURFLANT).

When consolidated, the data we collected presented the global locations of inventory that is available to support HA/DR missions. We recognized that not all prepositioned materiel would be effective for HA/DR missions and that not all prepositioned materiel was categorized as HA/DR inventory, and thus would not be releasable per the individual Service doctrines. Due to the little collaboration among the DoD agencies in this type of research, collecting and analyzing the data was demanding. In fact, as the DoD increases the amount of operations with non-DoD agencies, military leaders will recognize the potential for improving inter-agency synergies. Thus, in the Vice Chairman Joint Chiefs of Staff (VCJCS, 2011), the TRANSCOM, along with the DLA, was tasked with developing a comprehensive plan for DoD materiel positioning and distribution to support the full ROMO.

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V. ANALYSIS

A. SERVICE/AGENCY SPECIFIC LOCATIONS

The map of worldwide storage locations of prepositioned materiel held by the DoD is displayed in Figure 2 and in spreadsheet format in Table 1. The following provides an in-depth discussion of storage locations across the Services and the DLA.

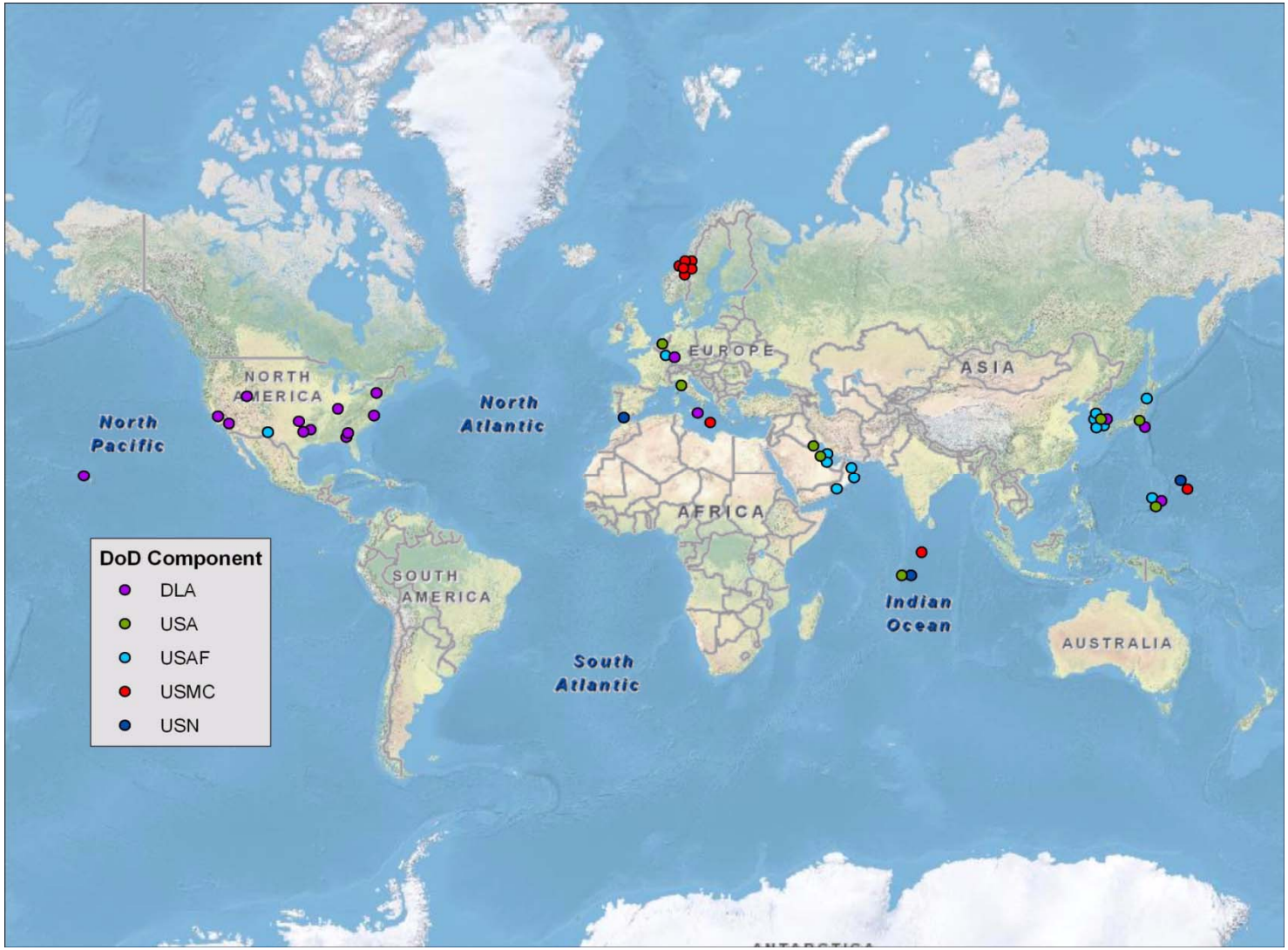

Figure 2. Global Prepositioned Materiel Locations

Table 1. Global Prepositioned Materiel Locations

Location	Latitude	Longitude	DoD Component
Shaikh Isa, Bahrain	25.918300	50.590600	USAF
Andersen AFB, Guam	13.584000	144.930000	USAF
Misawa, Japan	40.705278	141.371944	USAF
Sanem, Luxembourg	49.534199	5.944572	USAF
Holloman AFB, New Mexico	32.852500	-106.106389	USAF
Masirah, Oman	20.668766	58.892212	USAF
Seeb, Oman	23.592778	58.281667	USAF
Thumrait, Oman	17.665833	54.024444	USAF
Al Udeid, Qatar	25.116667	51.300000	USAF
Kimhae, South Korea	35.179444	128.938056	USAF
Kwang Ju, South Korea	35.126389	126.808889	USAF
Suwon, South Korea	37.239167	127.006944	USAF
Taegu, South Korea	35.893889	128.658611	USAF
MPSRON-1 Mediterranean Sea	35.147000	18.437000	USMC
MPSRON-2 Indian Ocean	-0.529000	78.044000	USMC
MPSRON-3 Pacific Ocean	17.531000	152.839000	USMC
Frigaard, Norway - 7650 Verdal, Norway	63.7936	11.4795	USMC
Tromsdal, Norway - 7650 Verdal, Norway	63.7936	11.4795	USMC
Bjugn, Norway	63.765000	9.809167	USMC
Hammernesodden, Norway - 7822 Bangsund, Norway	64.394800	11.396700	USMC
Hammerkammen, Norway - 7500 Stjoerdal, Norway	63.468400	10.917800	USMC
Kalvaa, Norway	63.183333	11.183333	USMC
DDAG - Albany, GA	31.550738	-84.063826	DLA
DDBC - Barstow, CA	34.898333	-117.022778	DLA
DDNV - Norfolk, VA	36.846667	-76.285000	DLA
DDOO - Oklahoma City, OK	35.414700	-97.386600	DLA
DDRT & DDED - Red River, TX	33.425000	-94.047500	DLA
DDHU - Hill Air Force Base, UT	41.125278	-111.983333	DLA
DDWG - Warner Robbins, GA	32.640000	-83.591667	DLA
DDDE - Germersheim, Germany	49.223056	8.363889	DLA
DDPH - Pearl Harbor, HI	21.352500	-157.995556	DLA
DDYJ - Yokosuka, Japan	35.293200	139.671300	DLA
DDGM - Naval Base Guam Marianas	13.444444	144.736667	DLA
DDDK - Waegwan, South Korea	35.991667	128.397222	DLA
DDSI - Sigonella, Italy	37.401700	14.922400	DLA
Marengo, IN	38.369167	-86.343611	DLA
DDSP & DDED - Susquehanna County, PA	41.943333	-75.599722	DLA
Quinlan, TX	32.910278	-96.135556	DLA
DDJC & DDED - San Joaquin, CA	36.606667	-120.189167	DLA
MPS1 East Atlantic Ocean/Mediterranean Sea	36.311000	-5.922000	USN
MPS2 - Diego Garcia/Indian Ocean	-7.313056	72.410833	USN
MPS3 Western Pacific Ocean	19.973000	150.833000	USN
APS - 2 Leghorn Army Depot, Livorno, Italy	43.542500	10.315833	USA
APS-2 Benelux Region (Noord-Brabant, Netherlands)	51.666667	5.000000	USA
APS-3 Diego Garcia	-7.313056	72.410833	USA
APS-3 Apra Harbor, Guam	13.429130	144.649380	USA
APS-4 Camp Carroll, Waegwan, South Korea	35.991667	128.397222	USA
APS-4 Sagami Army Depot, Yokohama, Japan	35.553056	139.354444	USA
APS-5 Camp As Sayliyah, Qatar	25.218889	51.379722	USA
APS-5 Ali Al Salem, Kuwait	29.350000	47.521111	USA

1. Navy

The Navy participates in HA/DR operations in various ways; however, prepositioning is best achieved through the use of the Military Sealift Command (MSC). The MSC's mission is to support the United States by delivering supplies and conducting specialized missions across the world's oceans. Its prepositioning program strategically places military equipment and supplies aboard ships located in key ocean areas to ensure rapid availability during a war, humanitarian operation, or other contingency (Military Sealift Command, 2011). Maritime Prepositioning Ship (MPS) Squadron 1 is located in the eastern Atlantic and Mediterranean Sea, MPS Squadron 2 is located in Diego Garcia and the Indian Ocean, and MPS Squadron 3 is located in the western Pacific Ocean. The MSC's fleet consists of 16 Maritime Prepositioning Force Ships that support the United States Marine Corps (USMC), 6 ships supporting the United States Army (USA), 7 ships supporting Navy (USN), the DLA, and Air Force (USAF), and two hospital ships. After numerous attempts to gather specific HA/DR load out information per type of ship, from SURFLANT, the information was considered confidential, and therefore we are unable to report the information in this thesis.

2. Marine Corps

a. Marine Corps Prepositioning Program–Norway (MCPP–N)

The purpose of MCPP–N, as described in the Headquarters Marine Corps Prepositioning Programs Handbook (United States Marine Corps, 2009), "is a DOD directed program for the storage, maintenance, and prepositioning of equipment and supplies for a MAGTF" (p. 23). The country of Norway is responsible for the maintenance and warehousing of the supplies and equipment. There are a total of six warehouses and two air station reception sites to support the Norway Air-Landed Marine Expeditionary Brigade (NALMEB) Program. These warehouses have a total storage area of 671,000 square feet, are climate and humidity controlled, and are protected by the cave structure they are encased in. Table 2 shows the size of each warehouse and air reception site station.

Table 2. Size and Locations of Warehouses in Norway (From USMC PPH, 2009, p. 24)

Location	Supply Type	Gross SqFt	Net SqFt
Frigaard	Equipment/supplies	247,435	226,171
Tromsdal	Equipment/supplies	286,016	254,900
Bjugn	Equipment/supplies	140,458	123,623
Vaernes Garnison	Rotary reception site	97,359	TBD
Oerland Main Airstation	Fixed Wing reception site	27,448	TBD
Hammernesodden	Ground Ammo	36,151	20,677
Hammerkammen	Ground Ammo	36,690	8,966
Kalvaa	Air & Ground Ammo	55,841	34,832

b. Maritime Prepositioning Force

Maritime prepositioning provides the joint force commander with an amplified capability to respond rapidly to any contingency within ROMO. This is due to the ability of the operational commander to select the location for offloading of equipment and supplies to support his mission.

> An MPF operation may consist of one ship interacting with a forward-deployed Marine Expeditionary Unit (MEU); a maritime prepositioning ships squadron (MPSRON) and a Marine Expeditionary Brigade (MEB) fly-in echelon (FIE); or a Marine Expeditionary Force (MEF) falling in on all three MPSRONs. The MPF is one component of the Marine Corps' rapid response capability triad, which also includes the air contingency MAGTF (ACM) and forward-deployed amphibious forces (AFs). (MCWP 3-32 Maritime Prepositioning Force Operations, 2004, Chapter 1)

The MPF program is separated into three regional squadrons: MPSRON-1 Mediterranean Sea, MPSRON-2 Indian Ocean, and MPSRON-3 Pacific Ocean. Figure 3 displays the location and range of each MPSRON.

Figure 3. Location and Range of Each MPSRON (From Maritime Prepositioning Force Operations MCWP 3-32)

The MPS consists of 16 prepositioning ships, displayed in Table 3.

Table 3. List of MPF Ships and Location (From http://www.mcpic.matcombic.usmc.mil/)

Name	Location
Private First Class William B. Baugh	MPSRON 1
Second Lieutenant John P. Bobo	MPSRON 1
Private First Class Eugene A. Obregon	MPSRON 1
Private First Class Dwayne T. Williams	MPSRON 1
Lance Corporal Roy M. Wheat	MPSRON 1
Private Franklin J. Phillips	MPSRON 2
Sergeant Matej Kocak	MPSRON 2
First Lieutenant Baldomero Lopez	MPSRON 2
Sergeant William R. Button	MPSRON 2
Gunnery Sergeant Fred W. Stockham	MPSRON 2
Corporal Louis J. Hauge Jr.	MPSRON 3
First Lieutenant Alex Bonnyman	MPSRON 3
Private First Class James Anderson Jr.	MPSRON 3
Major Stephen W. Pless	MPSRON 3
First Lieutenant Jack Lummus	MPSRON 3
First Lieutenant Harry L. Martin	MPSRON 3

3. Army

a. Four Categories of Army Prepositioning Stocks

Army Prepositioning Stocks (APS) consist of protected go-to-war assets and may only be used for the categorical purposes for which they were procured. The four categories of APS are as follows (United States Army, 2007):

- Prepositioned Unit Sets—These stocks are prepositioned at land and sea sites to support more than one contingency operation in more than one theater of operation.
- Operational Projects (OPROJ) Stocks—These stocks are authorized above unit authorizations and are designed to support one or more Army operations, plans, or contingencies.
- Army War Reserve Sustainment (AWRS) Stocks—These stocks are prepositioned near the theater to sustain operations until wartime resupply rates are established. The AWRS stocks consist of major end items to sustain battle and replace combat losses. The War Reserve Secondary Items (WRSI) are a subset of this to replace supplies consumed in battle.

- War Reserve Stocks for Allies (WRSA)—These stocks are prepositioned in the appropriate theater and are owned and funded by the U.S., but they are released to the appropriate Army Command for transfer to a supported allied force under the Foreign Assistance Act.

b. Location of APS

The prepositioned stocks of the APS are given in Table 4.

Table 4. APS Stocks (From United States Army, 2007)

APS Location	Supply Items
APS-1 (CONUS)	OPROJs and AWRS
APS-2 (Europe)	Unit Sets, OPROJs, and WRSA-Israel
APS-3 (Afloat)	Units Sets, OPROJs, and AWRS
APS-4 (Pacific and Northeast Asia)	Unit sets, OPROJs, AWRS, and WRSA
APS-5 (Southwest Asia)	Unit sets, OPROJs, and AWRS

c. APS-3

The afloat APS-3 are maintained in six prepositioning ships that are part of the Military Sealift Command ship inventory and are deployed to the Pacific (Guam/Saipan) and Indian (Diego Garcia) Oceans (Military Sealift Command, 2011). The ships are as follows:

- MV SSG Edward A. Carter, Jr.,
- MV LTC John U. D. Page,
- USNS Pomerey,
- USNS Red Cloud,
- USNS Watkins, and
- USNS Watson.

4. Air Force

a. Basic Expeditionary Airfield Resources

Basic Expeditionary Airfield Resources (BEAR) is an Air Force weapon system with seven component sub-systems consisting of; shelters, environmental control, power, waste/water, hygiene, feeding, and airfield support. BEAR is configured in unit-

sized packages that are modular and scalable and available to perform a global mission. BEAR unit packages consist of BEAR sub-sets of BEAR 150 (B-150) sets, BEAR 550 Initial (B-550i) sets, BEAR 550 Follow-on (B-550f) sets, BEAR Industrial Operations (B-IO) sets, BEAR Initial Flight line (B-IF) sets, and BEAR Flight line Follow-on (B-FF) sets. More detailed information about BEAR components can be found in the Guide to Bare Base Assets (United States Air Force, 2006).

b. Current BEAR Storage Site Locations

McGarvey et al. (2010) lists 13 BEAR storage site locations; these are given in Table 5.

Table 5. Prepositioning Sites for BEAR (From McGarvey et al., 2010)

Shaikh Isa, Bahrain	Thumrait, Oman
Andersen AFB, Guam	Al Udeid, Qatar
Misawa, Japan	Kimhae, South Korea
Sanem, Luxembourg	Kwang Ju, South Korea
Holloman AFB, New Mexico	Suwon, South Korea
Masirah, Oman	Taegu, South Korea
Seeb, Oman	

5. Defense Logistics Agency

The DLA prepositioned stocks consists of six distribution warehouses outside the continental United States (OCONUS), nine inside the continental United States (CONUS), and one deployable distribution expeditionary depot. Table 6 lists the DLA warehouses.

Table 6. Sites of DLA Warehouses

CONUS	OCONUS	EXPEDITIONARY
San Joaquin, CA (DDJC)	Europe (Germany, DDE)	Deployable Distribution Expeditionary Depot (DDED)
Albany, GA (DDAG)	Pearl Harbor, HI (DDPH)	
Susquehanna, PA (DDSP)	Yokuska, Japan (DDYJ)	
Barstow, CA (DDBC)	Guam (DDGM)	
Norfolk, VA (DDNV)	Korea (DDDK)	
Oklahoma City, OK (DDOO)	Sigonella, Italy (DDSI)	
Ogden, UT (DDHU)		
Warner Robbins, GA (DDWG)		

B. SERVICE MISSIONS AND CONDITIONS FOR RELEASE

Each DoD Service and agency has its own doctrine or set of guidelines that clarify materiel requirements and management policies to support contingency operations throughout ROMO. Although vastly different in management processes, each doctrine elucidates who owns the materiel, who is accountable for the inventory, who is approved for release of the inventory (release authority), and under what conditions it can be released. This section defines the unique mission statements of each Service and the DLA. These mission statements are tied directly to Service priorities and help to define the conditions for and manner of release authority delineated by each Service.

1. Department of Defense

Except for immediate operations deemed necessary by the COCOMs, any DoD HA/DR activity is triggered by the U.S. State Department. For foreign requests, DoD Directive 5100.46 (Under Secretary of Defense for Acquisition, Technology, and Logistics [USD(AT&L)], 1975) states that the DoD will take part in HA/DR operations after the Department of State determines that foreign disaster relief is necessary and requests the assistance from the DoD via the Secretary of Defense (SecDef). The SecDef determines the actions to be taken within the DoD, develops the plans and procedures in

collaboration with other agencies contained in the DoD, assesses the overall effectiveness of the plans, allocates the funds needed to conduct the operations, and establishes liaisons with the Department of State and other agencies involved in the foreign disaster relief.

For HA/DR activities within the U.S. sovereign territories, Defense Support of Civil Authorities (DSCA) requests for DoD assistance are initiated by civil authorities and authorized by the President or the SecDef. Within the DoD, DSCA provides guidance on how the United States military can be requested and the procedures that govern their actions during the operation. All requests for HA/DR assistance are evaluated by legality, risk, cost, appropriateness, and readiness.

The secretary of any of the military departments may conduct humanitarian and civil assistance (HCA) activities in foreign countries and in conjunction with military operations as long as he/she determines the activities uphold security interests for both the United States and the host nation, and as long as he/she utilizes the skills of the armed forces being employed (Humitarian and other assistance, 2011). HCA activities conducted under Title 10 will have prior approval from the Secretary of State and are to only include medical, surgical, dental, and veterinary care, as well as well-drilling, surface transportation, and sanitation facility and public facility construction. The DSCA is the DoD approval authority for all HCA projects proposed by the COCOMs.

2. Defense Logistics Agency

The DLA's mission asserts that the

> DLA shall function as an integral element of the military logistics system of the Department of Defense to provide effective and efficient worldwide logistics support to the Military Departments and the Combatant Commands under conditions of peace and war, as well as to other DoD Components and Federal agencies, and, when authorized by law, State and local government organizations, foreign governments, and international organizations. (Secretary of Defense, 2006)

As a Combat Support Agency, the DLA's responsibilities include supporting Combatant Commands by establishing DLA Regional Commanders (DRC) and providing DLA Contingency Support Teams (DCST's), which will forward deploy during contingency

operations. The DRCs assist in coordinating logistics support; developing policy, plans, and procedures; developing resource requirements; and managing DLA overseas activities. The DCSTs bestow liaison, logistics, and plans officers as well as any other assistance deemed necessary by the DRC (Secretary of Defense, 2006). These assets also provide for other duties as may be assigned by the SecDef and his executives. In an emergency, the Combatant Commands are authorized to assume temporary operational control of all DLA elements in the contingency area of operations, with notification immediately following to the COCOMs constituents.

The DLA is capable of entering into support and service agreements and performance-based agreements with the Military Services, other DoD components, federal government agencies, and foreign governments as required for the effective performance of DLA functions and responsibilities (Secretary of Defense, 2006). Such an agreement was constructed between the DLA and Federal Emergency Management Agency (FEMA) in March 2006. The Interagency Agreement (IAA) permits the DLA to procure and maintain supplies for FEMA's response to HA/DR situations. Provisions include, but are not limited to, food, water, health and comfort kits, pharmaceuticals, medical supplies, communication equipment, cots, generators, fuel, shelters, and construction material. These items can be requested for disaster prepositioning support and planning during the disaster as well as after the disaster (Federal Emergency Management Agency & Defense Logistics Agency, 2006).

In addition, DLA Troop Support has constructed a First to Go Program that locates items such as MREs, water, cots, blankets, tents, sleeping bags, sand bags, and so forth in both CONUS and OCONUS DLA warehouses. The program supports both DoD and FEMA while deployed for HA/DR missions.

3. Marine Corps

The National Security Act of 1947 sets the official mission of the Marine Corps;

> Marines are trained, organized, and equipped for offensive amphibious employment and as a force in readiness. (National Security Act of 1947).

The act further details the following seven elements of the mission:

> 1. Provide Fleet Marine Force with combined arms and supporting air components for service with the United States Fleet in the seizure or defense of advanced naval bases and for the conduct of such land operations as may be essential to the execution of naval campaign.
>
> 2. Provide detachments and organizations for service on armed vessels of the Navy and security detachments for the protection of naval property at naval stations and bases.
>
> 3. Develop, in coordination with the Army, Navy, and Air Force, the doctrine, tactics, techniques, and equipment employed by landing forces in amphibious operations.
>
> 4. Provide Marine forces for airborne operations, in coordination with the Army, Navy, and Air Force, according to the doctrine established by the Joint Chiefs of Staff.
>
> 5. Develop, in coordination with the Army, Navy, and Air Force, the doctrine, procedures, and equipment for airborne operations.
>
> 6. Expand peacetime components to meet wartime needs according to the joint mobilization plans.
>
> 7. Perform such other duties as the President may direct.

The requirement to be a force in readiness, perform such other duties as the President may direct, and the changes to Joint Publication 3 concerning ROMO cement the need for the Marine Corps to have prepositioned stocks throughout the globe in order to rapidly deploy with assistance from the Navy in order to dominate hostile adversaries or conduct HA/DR operations. The USMC prepositioning has provided the ability to execute crisis response, global reach, forward presence, and all other operations across ROMO (USMC Prepositioning Programs Section Webpage, 2011). Due to the Service-unique core competency and mission, the Marine Corps enables all prepositioning assets to be available for use for all assigned missions.

4. Army

The Army's mission is to fight and win our nation's wars by providing prompt, sustained land dominance across the full range of military operations and the spectrum of conflict in support of combatant commanders (United States Army, 2011). The Army deploys prepositioned materiel in order to meet the prescribed mission of the force.

Army Prepositioned Stocks (APS) may be released under the following conditions (United States Army, 2007):

- Major Combat Operations (MCO)—APS are released as directed by the Chairman, Joint Chiefs of Staff, or by the Chief of Staff of the Army to support MCOs.
- Small-Scale Contingencies (SSC)/National Emergencies—APS are released by Deputy Chief of Staff for Operations / Civil Affairs / Advanced Concepts (DCS G-3/5/7) to support SSCs/National Emergencies.
- Peacetime Emergencies—APS are released by the Deputy Chief of Staff for Logistics (DCS G-4), in conjunction with the DCS G-3/5/7, in support of peacetime emergencies.
- Exercise Support—APS may be issued to validate war reserve materiel issue procedures for an approved exercise.

5. Air Force

The official mission of the United States Air Force was established in the National Security Act of 1947. This act set out requirements for the Air Force to be organized, trained and equipped primarily for prompt and sustained offensive and defensive air operations (National Security Act, 1947). The Air Force Policy Directive 23-1, dated February 15, 2011, defines War Reserve Material (WRM) to be "stock required to sustain operations for the scenarios authorized for sustainability planning in the combatant commander (COCOM) war plans and war mobilization planning (WMP) documents" (p. 6). It further assigns the Air Force Materiel Command (AFMC) as the major command responsible for accountability, availability, and maintainability of Air Force materiel, to include WRM (United States Air Force, 2011).

Air Force Instruction 25-10,1 dated May 2, 2005, explains when WRM can be used:

> WRM is authorized for wartime. With proper approval/authorization and funding, it may be used for Small Scale Contingency (SSC), Noncombatant Evacuation Operation (NEO), steady state Air and Space Expeditionary Force (AEF), Joint Chiefs of Staff (JCS) exercises, and emergencies. The use of WRM should be contingent upon the impact on our ability to support the National Military Strategy. As a minimum, critical factors such as airlift cost, operational timeliness, other sources of support and the ability and timeliness of reconstituting WRM assets must be considered (United States Air Force, 2005).

C. DEPARTMENT OF DEFENSE CLASSES OF SUPPLY THAT MAY BE USED FOR HA/DR

We conducted analysis on the inventories of prepositioned materiel to identify possible items for HA/DR support. The data was collected from the Army Sustainment Command's battleweb program (https://battleweb.army.mil), the Marine Corps Prepositioning Information Center's MICPIC site (http://www.mcpic.matcombic.usmc.mil), the Air Force Handbook 10-222 Volume II Guide to BARE Base Handbook (United States Air Force, 2006), and the DLA's list of First to Go items.

We then identified the portion of the data that could be released at the normal approval level for use in an HA/DR mission. This was accomplished by studying the release procedures of each Service. By reviewing each Service doctrine, we determined that the OPROJ portion of the APS stocks met the criteria as well as, all Marine Corps prepositioned stocks, the Air Force BEAR sets, and the DLA first-to-go items.

The portion of materiel that we determined to be releasable for HA/DR was then further partitioned by applying a data filter to reveal the Class I, II, IV, and VIII materiel. This subset of materiel was then filtered by nomenclature to identify materiel that would be useful during an HA/DR mission (e.g., water, MREs, cots, blankets, tents, medical material, and generators).

In this analysis, we determined that there would be a total of 102 individual line items of stock normally available to support HA/DR missions across Class I, II, IV, and VIII. These line items have a total dollar value of over $281 million.

1. Class I

Class I inventory consists of two line items of stock worth over $8 million. The items consist of MREs and bottled water.

Each Marine Corps component of MPSRON 1, 2, and 3 prepositions 72,960 MREs (United States Marine Corps, 2010).

DLA HA/DR CONUS First to Go Class 1 prepositioning consists of four MRE supply/distribution sites, including Susquehanna, PA; Norfolk, VA; Albany, GA; and Quinlan, TX, as well as two commercial MRE storage locations, to include Marengo, IN, and San Joaquin, CA. In total, the DLA stores 760,700 MRE cases in CONUS and maintains one-third of them in depot stock and two-thirds in commercial locations (see Figure 4).

NSN	NOUN	RIC	UI	DDJC	DDSP	DDAG	DDBC	DDNV	DDOO	DDRT	DDHU	DDWG	CONUS QTY	CONUS QTY
8970 001491094	MREs	SMS	BX	83,089		324,100		353,665					**760,854**	**760,854**
8960 000000170	Bottled Water, 16oz btles	SMS	EA	28,725	23,825			17,950				6	**70,506**	**70,506**
7105 011543865	Cots, Commercial (Comm)	SMS	EA	2,818	17,377	784							**20,979**	
7105 009350422	Cots, Military	SMS	EA	2,686	20,562								**23,248**	**44,227**
7207 001195335	Bed Blankets, Disaster	SMS	EA	2,669	8		1				22		**2,700**	
7210 006826600	Bed Blankets, Wool Royal Blue	SMS	EA										**0**	
7210 002827950	Bed Blankets, Wool, Army	SMS	EA		33,113				136				**33,249**	
7210 001395779	Bed Blankets, White Cotton	SMS	EA	245	64								**309**	**36,258**
7210 010155190	Bed, Pillow	SMS	EA		1,720								**1,720**	**1,720**
7210 004827071	Bed Sheet	SMS	EA										**0**	**0**
9930 001701492	Human Remains Pouch	SMS	EA										**0**	
9930 004511231	Human Remains Pouch, Mil	SMS	EA	1,693	7,080								**8,773**	
9930 013316244	Human Remains Pouch, Comm	SMS	EA	28,361	37,807								**66,168**	**74,941**
8105 001429345	Sand Bags, Plastic, Polypropylene	SMS	HD	112,122					5				**112,127**	
8105 013366163	Sand Bags, Plastic, Polypropylene	SMS	HD		9,641	2,061							**11,702**	
8105 014670402	Sand Bags, Plastic, Polypropylene	SMS	HD										**0**	
8105 009357101	Sand Bags, Plastic, Olive Drab	SMS	HD										**0**	
8105 013313704	Sand Bags, Plastic, Tan	SMS	HD		1,300								**1,300**	
8105 007822709	Sand Bags, Cloth, Comm	SMS	PG		356								**356**	**125,485**
8340 013955953	Tents, GP Medium	SMS	EA				165						**165**	
8340 007823232	Tent, GP 16X16	SMS	EA		638		789						**1,427**	
8340 015058656	Tent, GP	SMS	EA		76								**76**	
8340 015356379	Tents, HS	SMS	EA	396	33								**429**	**2,097**
8465 015472706	Sleeping Bag, Patrol	SMS	EA										**0**	
8465 013980687	Sleeping Bag Int Black	SMS	EA		18								**18**	
8465 013980685	Sleeping Bag, X-Long	SMS	EA		1,792								**1,792**	**1,810**
7240 000893827	Water Cans	SMS	EA	2,315	6,827				43	1,664		9,418	**20,267**	**20,267**
6850 013526129	Chlorine Tablets	SMS	PG										**0**	**0**
7210 002669740	Insect Net Protector	SMS	EA	4,551	9,739								**14,290**	**14,290**
7210 003006950	Clamp, Insect Net Protector	SMS	EA	4,072	383								**4,455**	**4,455**
7210 002675641	Pole, Floding Cot	SMS	SE	49,398	59,897		217	171	498			25	**110,206**	**110,206**
latest update: February 1, 2011 @ 1200														

Figure 4. DLA CONUS First to Go Items (From DLA Troop Support, Subsistence)

In addition, the DLA prepositions MRE cases OCONUS in Germany (DDDE), Pearl Harbor, HI (DDPH), and Yokosuka, Japan (DDYJ). Prepositioned MRE cases total 108,122 (see Figure 5).

NSN	NOUN	RIC	UI	DDDE	DDPH	DDYJ	DDGM	DDDK	DDSI	OCONUS QTY BY NIIN	OCONUS QTY BY TYPE
8970 001491094	MREs	SMS	BX	98,536	5,230	4,356				**108,122**	**108,122**
8960 000000170	Bottled Water, 16oz btles	SMS	EA							**0**	**0**
7105 011543865	Cots, Comm	SMS	EA	133						**133**	
7105 009350422	Cots, Military	SMS	EA		326					**326**	**459**
7207 001195335	Bed Blankets, Disaster	SMS	EA			1,500	3,000			**4,500**	
7210 006826600	Bed Blankets, Wool Royal Blue	SMS	EA							**0**	
7210 002827950	Bed Blankets, Wool Army	SMS	EA				836			**836**	
7210 001395779	Bed Blankets, White Cotton	SMS	EA							**0**	**5,336**
7210 010155190	Bed, Pillow	SMS	EA							**0**	**0**
7210 004827071	Bed Sheet	SMS	EA		328	797	11			**1,136**	**1,136**
9930 001701492	Human Remains Pouch	SMS	EA							**0**	
9930 004511231	Human Remains Pouch, Mil	SMS	EA							**0**	
9930 013316244	Human Remains Pouch, Comm	SMS	EA	721	164	54				**939**	**939**
8105 001429345	Sand Bags, Polypropylene	SMS	HD	3,860	79	109		3		**4,051**	
8105 013366163	Sand Bags, Polypropylene	SMS	HD							**0**	
8105 014670402	Sand Bags, Polypropylene	SMS	HD							**0**	
8105 009357101	Sand Bags, Olive Drab	SMS	HD							**0**	
8105 013313704	Sand Bags, Tan	SMS	HD							**0**	
8105 007822709	Sand Bags, Cloth, Comm	SMS	PG							**0**	**4,051**
8340 013955953	Tents, GP Medium	SMS	EA				100			**100**	
8340 007823232	Tent, GP 16X16	SMS	EA							**0**	
8340 015058656	Tent, GP	SMS	EA							**0**	
8340 015356379	Tents, HS	SMS	EA				50			**50**	**150**
8465 015472706	Sleeping Bag, Patrol	SMS	EA							**0**	**0**
8465 013980687	Sleeping Bag Int Black	SMS	EA							**0**	**0**
8465 013980685	Sleeping Bag, X-Long	SMS	EA							**0**	**0**
7240 000893827	Water Cans	SMS	EA		196	464	55	62		**777**	**777**
6850 013526129	Chlorine Tablets	SMS	PG				308			**308**	**308**
7210 002669740	Insect Net Protector	SMS	EA							**0**	**0**
7210 003006950	Clamp, Insect Net Protector	SMS	EA	366						**366**	**366**
7210 002675641	Pole, Folding Cot	SMS	SE	487	2,051		301			**2,839**	**2,839**
latest update: February 1, 2011 @ 1200											

Figure 5. DLA OCONUS First to Go Items (From DLA Troop Support, Subsistence)

2. Class II

Class II materiel consists of 44 line items of stock worth nearly $230 million and positioned globally across the Services. Items in this class are represented by cots, blankets, sheets, and tents. In our analysis, we identified that the Army maintains Force Provider Modules in prepositioning that are full camp sets to support 550–3,000 personnel based on the set type. The Force Provider Modules have a unit cost of $6.3 million and make up $183 million of the Class II inventory, or over 65% of all materiel we identified in this study as available for prepositioning for HA/DR.

3. Class IV

The DoD maintains 25 line items of Class IV stock worth over $38 million and comprised of inventory from all Services that is distributed globally in prepositioned locations. This inventory consists of various engineering items from plywood to generators.

4. Class VIII

The DoD maintains 31 line items of medical stock readily available for HA/DR missions and worth over $4 million. The items in this inventory include surgical sets, medical supply sets, and surgical instruments.

The mission of the MSC's two hospital ships, the USNS *Mercy* and the USNS *Comfort*, is to provide mobile, flexible, rapidly responsive, afloat medical capability, along with acute medical and surgical care in support of; amphibious task forces, the Marine Corps, the Army, and the Air Force elements that are forward-deployed elements of the fleet and also fleet activities in areas where hostilities may be imminent. The secondary mission of the MSC hospital ships is to provide a full-service hospital asset for use by other government agencies involved in the support of disaster relief and humanitarian operations worldwide (Pike, 2008). The *Mercy* is ported in San Diego, CA, and the *Comfort* is in Baltimore, MD, when in reduced status. In full operating status, both ships' crew have 65 civil service mariners and 1,215 naval medical personnel, and

they both can deploy within five days from receipt of orders and be capable of conventional and vertical replenishments (CONREP/VERTREP). In addition, the hospital ships can receive 200 patients per day and have 12 fully equipped operating rooms, a 1,000-bed hospital facility, a casualty reception, radiological services, 5,000 units of blood, a laboratory and satellite lab, central sterile receiving, medical supply/pharmacy, a physical therapy and burn care unit, an intensive care unit, dental services, an optometry/lens lab, a morgue, laundry facilities, two oxygen-producing plants, and a helicopter deck with the capacity for landing large military helicopters.

The DLA Troop Support does manage medical commodities for the DoD, but primarily it uses vendor support. The medical industrial base of the United States is so large that DoD requirements can easily be sourced from vendors that supply the supplies.

The Headquarters Marine Corps Prepositioning Programs Handbook (2009) states,

> An EMF is loaded aboard the MPF enhancement ships of each MPSRON. (see Table 7) Once off-loaded, the EMF provides comprehensive medical support of a theater hospitalization capable facility (level III). The EMF is available to support Marine Corps missions as directed by the CCDR or Naval Component Commander (NCC). Although primarily designed for setup and operations ashore, the EMF, or its elements, may also be operated aboard selected ship types. Medical personnel who assemble and operate the EMF are deployed from various Navy medical commands and flown into theater during a contingency. (p. 20)

Table 7. Expeditionary Medical Facilities Statistics (From United States Marine Corps, 2009)

Capacity
273 beds
63 intensive beds
210 intermediate beds
4 operating room tables
Supplies
5–30 day blocks
Size/Speed
17 acres
Fully assembled in 5 days
Surgical Capacity
General
Thoracic
Urology
Gynecology
Orthopedics
Neurosurgery
Ophthalmology
Anesthesiology
Oral surgery
General dentistry

VI. CONCLUSIONS AND RECOMMENDATIONS

A. SUMMARY AND CONCLUSIONS

The U.S. military is a major player in HA/DR operations due to the operations residing in the DoD's mission set. The DoD routinely leads initial HA/DR responses as demonstrated by the recent actions of the U.S. Navy in Japan and Haiti, as well as those of the U.S. Army and Marine Corps following the flood in Pakistan. Having unique physical and logistic resources, the DoD has made HA/DR operations a "core military mission" (DoD, 2010). The concentrated entry of the U.S. military into HA/DR operations offers more effective international collaboration in response to disasters than other government organizations due to pre-established interpersonal relationships. However, it increases the imperative to ensure that coordinated resources mean improved outcomes (Naval War College, 2010). In addition to international collaboration, the Services will be expected to execute missions with less manpower and more joint-Service cooperation. In our research, we have observed that the current prepositioning concept of the DoD still supports Service specific missions of a Cold War era due to the decentralized nature of the programs, databases, and policies.

We have discovered independent studies, such as the DoD's CMRP, that have attempted to gain situational awareness of the location and amount of materiel held by the Services and the DLA to conduct a variety of missions. This thesis is concerned with items specific to contingency operations supporting HA/DR. Due to the vertical integration framework of the DoD, one would think that the percentage of the Defense budget spent on HA/DR operations and the recent focus on synergy and total asset visibility would produce a collaborative computer system that could map out the DoD's prepositioned assets. However, there is no common information pool that is able to report what each Service is holding in inventory, nor are all Service inventories readily available. The DoD should concentrate on establishing one agreed-upon information technology database that would display a worldwide common picture of prepositioned supplies across the Services that optimizes response on a global scale. The ROMO

concept will have the DoD engaged in contingencies that require a smaller amount of personnel but a larger amount of joint force cooperation. For that reason, the Services should have the ability to provide recommendations to a central DoD prepositioned supervision organization, but ultimately, the stocks should support the joint mission and be optimized on the global scale and not sub-optimized at the COCOM level. Release authority should also be delegated to the central DoD prepositioned supervision organization; this would ensure that each mission is logistically supported in the efficient and, more importantly, effective manner that a prepositioning strategy should support. The DoD must be prepared for conventional operations and must support the joint global force of good to plan for humanitarian and disaster operations with prepositioned items and a trained joint cadre that can plan and execute specific to these non force-on-force operations. The concept should ensure maximization of effectiveness across ROMO, yet maintain Service-specific core competencies.

The DoD has not developed a coordinated department-wide plan or joint doctrine to guide the future of its prepositioning programs, despite the heavy use of prepositioned stocks in recent conflicts and the department's plans to rely on them in the future. The DoD's recently published defense strategy indicates that prepositioning programs should be more innovative, flexible, and joint. In the absence of a department-wide plan or joint doctrine to coordinate the reconstitution and future plans for these prepositioning programs, the Services have been recapitalizing stocks and developing future plans without an understanding of how the programs will fit together to meet the evolving defense strategy.

B. RECOMMENDATIONS FOR FUTURE WORK

- Identify the specific inventory held as prepositioned materiel and find commonalities across the Services. This project covered only a small set of prepositioned material that we thought would be useful in an HA/DR mission. The true scale of any centralized management or inventory system cannot be realized until the commonalities in inventory are identified.

- Identify the commodities that have been released from military prepositioning in support of past HA/DR missions. The set of material identified might be able to help define sets of material that can be developed to specifically support HA/DR operations.
- Conduct a risk analysis of the likelihood and severity of each event in the ROMO and determine how much prepositioning support is needed for each Service to complete its primary mission. The ROMO concept covers a wide range of mission sets, and there is risk involved in applying limited resources to the missions. The levels of risk should be calculated so an educated decision can be made about what levels are acceptable.
- Map the inventory and location of non-DoD organizations and determine if these inventories can be used to supplement the DoD's HA/DR initial response. This project would enhance the map created in this study to include all inventory involved in HA/DR efforts.
- Determine if packaged sets are efficient in all aspects of ROMO. This study identified the large Army force sustainment modules and the Air Force BEAR sets as available for issue in HA/DR. The decision to issue a 3,000-man camp in order to attain 500 cots does not make sense to support a small-scale mission. The use and issue of packaged sets needs to be inspected and the possibility of adding modularity to the set would ease issue for smaller contingencies.
- Determine if HA/DR packaged sets would be effective/efficient on a global or regional scale. We recommend a follow-on study be conducted to make this determination once the specific sets of material that would be useful in a set are identified.
- Future research should look at private-sector prepositioning strategies to determine whether the DoD could ascertain something from their strategies and build collaboration to increase total efficiency and effectiveness.

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